

Name: \_\_\_\_\_

**at1119paper: Complete the Square,  $b = \text{odd}$  (v514)**

**Example**

By completing the square, find both solutions to the given equation:

$$x^2 - 47x = -442$$

Add  $\left(\frac{-47}{2}\right)^2$ , which equals  $\frac{2209}{4}$ , to both sides of the equation.

$$x^2 - 47x + \frac{2209}{4} = \frac{441}{4}$$

Factor the left side.

$$\left(x + \frac{-47}{2}\right)^2 = \frac{441}{4}$$

Undo the squaring.

$$\begin{array}{lll} x + \frac{-47}{2} = \frac{-21}{2} & \text{or} & x + \frac{-47}{2} = \frac{21}{2} \\ x = \frac{47 - 21}{2} & \text{or} & x = \frac{47 + 21}{2} \\ x = 13 & \text{or} & x = 34 \end{array}$$

**Question 1**

By completing the square, find both solutions to the given equation:

$$x^2 - 31x = -58$$

**Question 2**

By completing the square, find both solutions to the given equation:

$$x^2 + 43x = -456$$

**Question 3**

By completing the square, find both solutions to the given equation:

$$x^2 + 7x = 450$$